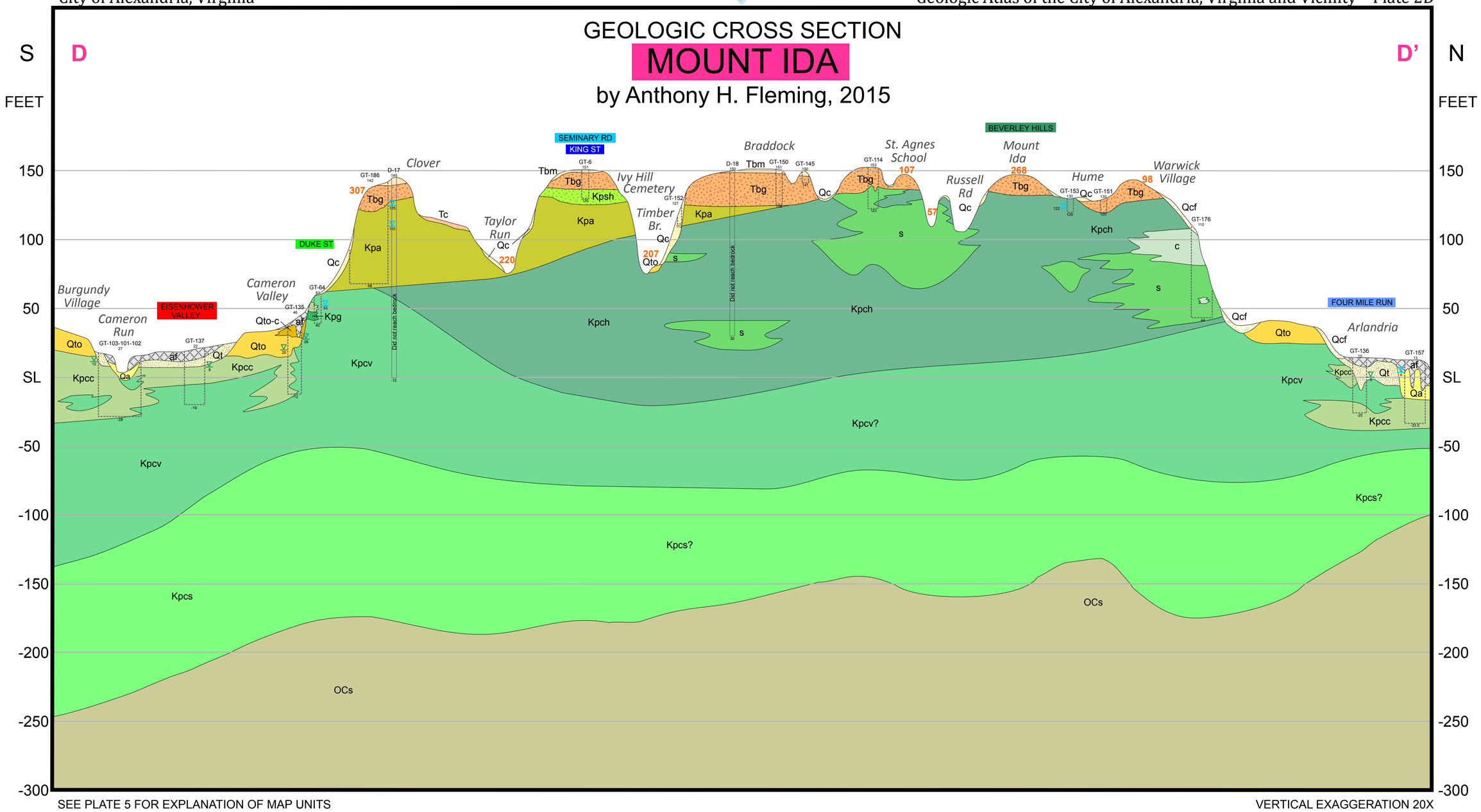
GEOLOGIC CROSS SECTION

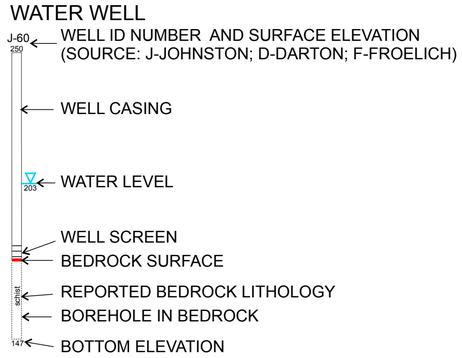
MOUNT IDA

by Anthony H. Fleming, 2015

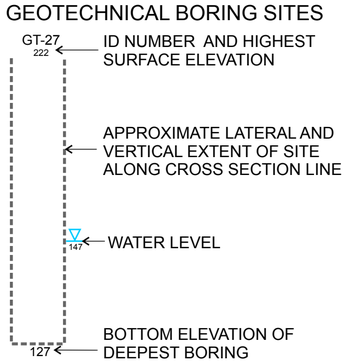


EXPLANATION OF CROSS SECTION SYMBOLS:

WATER WELL



GEOTECHNICAL BORING SITES



WATER LEVELS REPORTED IN WELLS AND GEOTECHNICAL BORINGS

119 — WATER LEVEL MEASURED IN WELL OR CASED GEOTECHNICAL BORING COMPLETED IN THE CAMERON VALLEY SAND (LOWER AQUIFER OF THE POTOMAC FORMATION)

132 — WATER LEVEL MEASURED IN 1976 FROM WELL COMPLETED IN CAMERON VALLEY SAND (JOHNSTON AND LARSON, 1977)

210 — WATER LEVEL MEASURED IN WELL OR GEOTECHNICAL BORING COMPLETED IN OTHER AQUIFERS. MAY REPRESENT A COMPOSITE OR AVERAGE WATER LEVEL AT GEOTECHNICAL SITES WITH MANY BORINGS

OTHER SYMBOLS

47 — SURFACE EXPOSURE. SOME EXCAVATIONS COINCIDE WITH GEOTECHNICAL BORING SITES

DUKE ST — INTERSECTION WITH ANOTHER CROSS SECTION. CROSS SECTIONS ARE DISTINGUISHED BY NAME AND COLOR-CODED SECTION LINES AND TITLES

GEOLOGIC CROSS SECTION 2D – MOUNT IDA

Cross section 2D extends northward from Burgundy Village, south of Cameron Run, to Arlandria, at Four Mile Run. The section more or less follows the top of the Mt. Ida escarpment, which separates the northeastern highlands from the low-lying Old Town terrace. The view is generally to the west along the section line, which follows a somewhat zig-zag course to take in the locations of 16 geotechnical boring sites and several historical water wells and significant exposures. These features, and other sites of cultural, historical, and environmental interest. are indicated by labels and symbols along the cross section. The specific location of the cross section is indicated on Plate 1 by a hot pink section line.

The cross sections are intended to be used together with the geologic maps, particularly Plate 5, to illustrate the third dimension of the map units and their relation to landforms and water resources. Contacts between map units are approximately located; the abundance of control points (surface exposures, wells, geotechnical sites) along the cross section provides a general indication of the reliability of contact locations. Map units are depicted using the same colors, patterns, and labels as on Plate 5, and the explanation of map units on Plate 5 serves as the legend. The section also depicts some bedrock units present only in the subsurface and identified on plate 3.

The dominant physiographic feature visible in the section is the highly dissected Beverley Hills terrace, whose erosional remnants cap the summit of the Mt. Ida escarpment at most places. Numerous ravines are present in this area, some short and steep, others long and more gentle; all are deeply entrenched and often filled by thick, gravelly colluvium derived from the eroding edges of the terrace.

The Mount Ida section illustrates some of the complexities associated with interpreting the Potomac Formation. Of the major members, the Arell clay (Kpa) appears to lie unconformably on the rest, cutting across the contacts of subjacent units before disappearing at its eroded feather edge in Braddock. The Shooters Hill gravel (Kpsh) is readily recognizable along King Street between Shooters Hill and Ivy Hill; it may also be present on the upland north of Timber Branch, where the terrace gravel appears unusually thick, but no clear evidence exists in this area to distinguish the sandier, clayier, and more weathered Shooters Hill member from the overlying terrace.